

**STATE OF ILLINOIS**  
**ILLINOIS COMMERCE COMMISSION**

COMMONWEALTH EDISON COMPANY	:	
	:	
Application of COMMONWEALTH EDISON	:	
COMPANY, for a Certificate of Public	:	
Convenience and Necessity, Pursuant to Section 8-	:	No. 01-0514
406 of the Illinois Public Utilities Act, to construct,	:	
operate and maintain new 138,000 volt electric	:	
transmission lines in Cook County, Illinois.	:	

Direct Testimony of  
JOHN W. EGLASTON, P.E.  
Transmission Engineer  
Commonwealth Edison Company

**OFFICIAL FILE**  
I.C.C. DOCKET NO. 01-0514  
ComEd Exhibit No. 2  
Witness \_\_\_\_\_  
Date 12-11-01 Reporter BAP

1 Q. What is your name and business address?

2 A. John W. Eglaston, Commonwealth Edison Company, Three Lincoln Centre, Oakbrook  
3 Terrace, Illinois 60181-4260.

4 Q. What is your position at ComEd?

5 A. I am ComEd's Transmission Engineer for underground projects. This is a system-wide  
6 position within Lines Engineering in the Planning and Engineering Organization of  
7 ComEd.

8 Q. What are your duties as Transmission Engineer?

9 A. I am ComEd's chief engineer for underground transmission functions. As such, I  
10 supervise all engineering and estimating work relating to the siting of underground  
11 transmission lines in conjunction with the associated substations and other facilities. My  
12 duties encompass evaluating the suitability of potential rights-of-way and sites for the  
13 construction of electric utility facilities, estimating the cost of construction of the  
14 transmission line facilities, participating in the selection of a preferred site and/or route  
15 for such facilities, and the development of a basic design for the transmission line  
16 facilities which is safe and consistent with good engineering practice and legal  
17 requirements. My responsibilities also include the complete engineering and design  
18 functions for most underground transmission line projects.

19 Q. Please describe what other positions you have held at ComEd.

20 A. From 1997 until 2000, when I became Transmission Engineer, I held the title Principal  
21 Technical Expert. In that position I performed engineering assessments and verified the

22 adequacy of technical products, conducted training seminars and technical presentations,  
23 and provided technical expertise for generating station engineering departments.

24 From 1993 through 1997, I was Lead Design Engineer. I led a staff of ten  
25 structural engineers, providing them direction and technical expertise, and reviewing and  
26 approving technical designs, recommendations, studies and reports. I also allocated  
27 engineering resources to accommodate the requirements of particular projects.

28 From 1991, when I started at ComEd, through 1993, I was a Senior Engineer. My  
29 duties were to prepare the analysis, design and specifications for modifications to  
30 generating stations. I conducted studies, performed economic evaluations and formulated  
31 technical recommendations. I also directed, reviewed and coordinated outside consulting  
32 engineer activities.

33 Q. Did you have any other work experience before coming to ComEd?

34 A. Yes. From 1985 to 1991, I was a Senior Engineer at the engineering firm Raths, Raths &  
35 Johnson in Willowbrook, Illinois. I did structural engineering work including failure  
36 analysis, and the repair and rehabilitation of steel, concrete and masonry.

37 From 1980 to 1985, I was a structural engineer at GDS Associates in Chicago,  
38 where I did analysis, design, and modifications to electric generation facilities. And,  
39 from 1976 to 1980 I worked as a design engineer at Alfred Benesch & Co., doing  
40 structural analysis and design of highway bridges and railroads.

41 Q. What is your professional education?

42 A. I have a Bachelor's Degree from the Illinois Institute of Technology in Civil Engineering,  
43 a Master's Degree from the Illinois Institute of Technology in Civil Engineering, with a  
44 major in structural engineering, and a Master's Degree in Business Administration from  
45 DePaul University, with a major in finance.

46 Q. Are you a Licensed Professional Engineer in the State of Illinois or in any other state?

47 A. Yes, I am a Licensed Professional Engineer in the State of Illinois. I am also licensed in  
48 Indiana, Kentucky, Michigan, Minnesota, Ohio, Pennsylvania, and Wisconsin. I am also  
49 a Registered Structural Engineer in the State of Illinois.

50 Q. To what professional organizations do you belong?

51 A. I am a member of the American Concrete Institute (ACI), the American Institute of Steel  
52 Construction (AISC), American Society of Civil Engineers (ASCE), and Structural  
53 Engineers Association of Illinois (SEAOI).

54 Q. How have you become familiar with the Petition in this proceeding?

55 A. As ComEd's Transmission Engineer, I have the responsibility for the conceptual design and  
56 engineering of these two proposed lines, as well as the analysis of possible alternative  
57 designs and routes.

58 Q. To the best of your knowledge are the statements set forth in the Petition true and correct?

59 A. Yes, they are.

60 Q. What is the purpose of the Petition?

61 A. To obtain a Certificate of Public Convenience and Necessity authorizing ComEd to  
62 construct, operate, and maintain two new 138,000 volt underground electric  
63 transmission lines connecting two existing ComEd substations to a new substation to be  
64 known as TSS 126 State.

65 Q. What is the purpose of your testimony in support of this Petition?

66 A. The purpose of my testimony is to describe the facilities which ComEd proposes to  
67 construct; to describe the process by which ComEd selected the route for those facilities; to  
68 explain why the proposed route and design should be approved; and to describe the process  
69 of constructing the proposed facilities and the cost thereof.

70 Q. What does Exhibit A to the Petition show?

71 A. Exhibit A shows the proposed route for the Line, as well as the typical cross sections of the  
72 conduit packages. It shows how the new transmission circuits will be contained in the  
73 conduit packages. While Exhibit A fairly represents the typical cross-sections, the design  
74 and location of the actual conduits may vary, as required by final engineering and  
75 construction needs.

76 Exhibit A shows where the proposed lines cross federal, state, and county  
77 highways and other major streets. It also shows the location of railroad tracks, the name  
78 of the railroad owning those tracks, the location of any pipelines and major power or  
79 communication lines to be crossed or paralleled within one-half mile of the line, and the  
80 names of the utilities owning or operating such lines. As Mr. Jones testifies, additional

power and communication lines routinely associated with the local delivery of utility and telecommunications services also exist within one-half mile of the proposed line, but are too numerous to show on Exhibit A.

Q. Please describe the route of the proposed line from Quarry TDC to State TSS.

A. As more fully described in Exhibit B to the Petition, the Quarry-to-State line will begin at ComEd's existing TDC 840 Quarry, and go under Senour Avenue to Archer Avenue, run under Archer Avenue to State Street, and then go north on State Street, ending up at the new proposed TSS 126 State at State and East 14<sup>th</sup> Place.

Q. What is the route of the other line, from LaSalle TSS to State TSS?

A. As more fully described in Exhibit B to the Petition, the LaSalle-to-State line will begin at ComEd's existing TSS 68 LaSalle and go south about one-half block to Polk Street, then east on Polk to Clark Street, then south on Clark Street to E. 14<sup>th</sup> Street, east on 14<sup>th</sup> Street to State Street, and then on State Street south to the new TSS 126 State substation.

Q. Please describe the circuit configuration and the type and design of the proposed lines.

A. Generally, the two lines will have the same configuration and design. At the bottom of the package will be eight six-inch PVC plastic conduits. The transmission circuits will each use three 1200 mm<sup>2</sup> copper conductors with cross-linked polyethylene (XLPE) insulation. Each duct package will contain two three-phase 138 kV circuits, or six transmission conductors in total. The remaining two six-inch ducts will contain two 500 kcmil parallel ground cables. Above the transmission conductors will be a concrete

101 encasement containing twenty 5-inch PVC plastic conduits for distribution conductors  
102 and fiber optics for system protection and control.

103 Q. Why is ComEd proposing to use the routes specified on Exhibit A?

104 A. They are the shortest, least-cost routes for the lines. They use existing transportation  
105 corridors, and minimize the number of landowners from whom ComEd needs property  
106 rights.

107 Q. Did ComEd seek alternative routes to the Line?

108 A. Yes, we looked at numerous alternatives.

109 Q. How did ComEd identify and analyze alternatives?

110 A. Given the locations of the substations to be connected, we canvassed the area for possible  
111 transportation rights-of-way that might be feasible for construction. We also discussed  
112 the possible routing with officials at the City of Chicago, and in particular the Streets and  
113 Sanitation Department, to find viable routes, coordinate ComEd's construction with other  
114 possible construction activities, and to evaluate possible underground obstacles that could  
115 delay construction and drive up costs.

116 Q. For the Quarry-to-State line, describe what routes ComEd analyzed.

117 A. We examined a number of combinations of city streets and other transportation rights-of-  
118 way. The routes which we considered actual, viable alternatives are shown in  
119 Attachment JWE-1.

120 Q. Why is the proposed route superior to the other alternatives?

121 A. The proposed route, option 1X on Attachment JWE-1, requires ComEd to obtain right-of-  
122 way permits from just two sources, the City of Chicago and the Illinois Department of  
123 Transportation. It does not involve a river crossing. It is direct and involves few turns.  
124 By using an angled street, Archer Avenue, for much of its length, it is significantly  
125 shorter than if we went under east-west and north-south streets alone. As shown on  
126 Attachment JWE-1, it is the least cost of the alternatives.

127 Q. For the LaSalle-to-State line, describe what routes ComEd analyzed.

128 A. Again, we examined a number of combinations of city streets and other transportation  
129 rights-of-way. The routes which we considered actual, viable alternatives are shown in  
130 Attachment JWE-2.

131 Q. Why is the proposed route superior to the other alternatives?

132 A. The available routes are all similar in length, because they are typically only a block or  
133 two from each other. The route that we estimated to be least cost, by an estimated margin  
134 of about \$360,000, actually would have routed the line down Federal Street instead of  
135 Clark Street. This is option 4X on Attachment JWE-2. This cost difference was due to  
136 the substantial number of underground utilities already present along Clark Street, as  
137 ComEd must carefully work around preexisting structures. However, Federal Street has  
138 numerous residential driveways, and the project would cause some inconvenience to the  
139 homeowners during construction. Accordingly, the City of Chicago has requested  
140 ComEd to use Clark Street, instead of Federal Street. The route we propose is option  
141 6Xa on Attachment JWE-2.



142 Q. How is ComEd's proposal least cost?

143 A. ComEd's proposal is least cost because the funds for the extra cost, estimated to be  
144 \$360,000, will come from a separate fund, not from ComEd and its ratepayers. Pursuant  
145 to a May 18, 1999 settlement agreement between the City of Chicago and ComEd,  
146 ComEd established a \$100,000,000 "Energy Reliability and Capacity Account" for  
147 energy projects requested by the City of Chicago. The funds that ComEd deposits under  
148 this agreement are accounted for by ComEd as below-the-line expenses, and therefore not  
149 part of ratebase. The City's representatives that control the expenditure of those funds  
150 have agreed to defray any difference in cost compared to the Federal Street route. We  
151 will consider this payment a "contribution in aid of construction," which effectively  
152 decreases the cost of the project for ratemaking purposes. On this basis, we conclude that  
153 the proposed route is not only the best, it is the least cost.

154 Q. For either line, did you consider running the cables in the existing freight tunnels?

155 A. Yes, we did consider that. However, it added some construction complications, and was  
156 not least cost.

157 Q. Will the proposed lines be constructed in accordance with all applicable federal and state  
158 regulations and orders of the Illinois Commerce Commission?

159 A. Yes. The lines will be constructed in accordance with all applicable regulations and  
160 orders of the Illinois Commerce Commission, including 83 Ill. Admin. Code Part 305,  
161 and the National Electric Safety Code.

162 Q. Will the proposed lines produce a magnetic field?

163 A. Yes, all electrical lines do.

164 Q. Is it anticipated that any problems of inductive interference will result from the lines?

165 A. No.

166 Q. How will the construction of the lines be managed?

167 A. The lines will be installed by both ComEd forces and by contractors supervised by ComEd.  
168 The contracts involved will be managed and field inspection and construction review  
169 provided by ComEd's Project and Contract Management Organization (formerly known as  
170 the Contract Services Department). This organization and its predecessors have many  
171 years of experience in managing this type of work and is adequately staffed to assure all  
172 work is done per specifications in a complete workmanlike manner. The majority of  
173 ComEd's over five thousand miles of transmission circuits have been installed by outside  
174 contractors under direction of this organization and its predecessors.

175 Q. What is the estimated cost of the construction of the proposed transmission lines?

176 A. We now estimate the direct cost of the lines at \$26.24 million in 2002 dollars. This is a  
177 slightly higher figure from our engineering estimate set forth in the petition. We have  
178 been able to refine our estimate because we now have actual bids from contractors.

179 Q. What is the estimated cost of all the construction involved in this project, including  
180 substation work?

181 A. Our current estimate is \$95.4 million in 2002 dollars.

182 Q. Does this conclude your testimony?

183 A. Yes.

Proposed 138kV Transmission Route Alternatives - Quarry TDC to State TSS

Route Option*	Route Length (mi.)	Est. Route Cost Yr. 2002 \$mil.	Route Description	Advantages	Disadvantages
1X	2.15	15.07	State St.- Archer Ave. - Senour Ave. - Quarry TDC	Within Public ROW; most direct/shortest route	Impacts traffic on Archer Ave. Use of Archer Ave. subject to IDOT approval.
2X	2.34	16.19	State St.- 15th St.- Clark St. - 18th - Wentworth Ave. - 19th St. - Wells St. - S. Tan Ct. - Princeton Ave. - Archer Ave. - Senour St. - Quarry TDC.	Within Public ROW. Archer Ave not affected between State St. & Princeton Ave.	Route is longer; thus requiring an additional manhole, cable and cable joints.
3X	2.56	17.73	State St.- 15th St.- Clark St. - 18th - Wentworth Ave. - 19th St. - Wells St. - S. Tan Ct. - Princeton Ave. - 24th Pl. - Archer Ave. - Senour St. - Quarry TDC.	Within Public ROW. Archer Ave not affected between State St. & 24th St..	Route is approx. 0.22 mi. longer & 9.5% higher in cost than route 2X. Princeton s. of Archer is a narrow row; utility congestion is somewhat high; contains L13701 on e. side, ameritech on west. Further utility data required and or test pits required to fully consider this route viable.
4X	2.23	16.67	Under CTA elevated Train route from STATE TDC site (14th Pl.) to Cullerton Ave. - Archer Ave. - Senour Ave. - Quarry TDC.	Avoids State Street.	Route is approx. 0.08mi. longer but 10.6% higher cost than route 1X. Portions of area below CTA may not be public way; needs further investigation by R.E. Dept. Cta structure foundations may require underpinning to allow ductbank installation adjacent to them. Very tight working conditions; concrete would have to be pumped to encase duct, build manholes, spoil haul-out materials and trench backfill materials would be difficult to get to the site areas.

"X" means XLPE cable system.

# Proposed 138kV Transmission Route Alternatives - LaSalle TSS to State TSS

Route Option*	Route Length (mi.)	Est. Route Cost Yr. 2002 \$mil.	Route Description	Advantages	Disadvantages
1-X	0.95	7.86	LaSalle St. to Polk St. to State St. to TSS	Within Public ROW	Impact on city streets. Underground utility congestion is high. State & Polk Inter. may require tunneling to effectively cross.
1-P	0.95	8.40	Same as Route 1 X	Within Public ROW	Impact on city streets. Underground utility congestion is high. State & Polk Inter. may require tunneling to effectively cross.
1A-X	0.95	7.67	LaSalle St. to Polk St. to Plymouth Ave to 9th St. to State St. to TSS	Within Public ROW	Impact on city streets. Underground utility congestion is reasonably high. Polk & Plymouth Inter. may require tunneling to cross but less than Opt. 1. State St. & Roosevelt Rd. intersection may require tunneling to cross.
1A-P	0.95	8.22	Same as Route 1 AX	Within Public ROW	Impact on city streets. Underground utility congestion is reasonably high. Polk & Plymouth Inter. may require tunneling to cross but less than Opt. 1. State St. & Roosevelt Rd. intersection may require tunneling to cross.
2-X	0.97	9.73	Largely in Freight Tunnels - LaSalle St. to Roosevelt Rd. to Clark St. to 14th St. to State St. south to TSS	Within Public ROW and minimizes impact on city streets and environment.	Access points to Freight Tunnels are costly; engineering time/costs increased.
2-P	0.97	9.03	Same as Route 2X	Within Public ROW and minimizes impact on city streets and environment.	Access points to Freight Tunnels are costly; engineering time/costs increased.
3-X	0.94	12.57	LaSalle St. south to Metra R.R. tracks, parallel tracks to 14th St. then east to State St. south to TSS.	Minimizes impact to city streets. Minimizes street restoration costs.	Costly property rights must be acquired. Construction coordination required with Metra. Possible underground obstructions from previous freight yard buildings. Inductive coordination required with Metra.
3-P	0.94	12.53	Same as Route 3X	Minimizes impact to city streets. Minimizes street restoration costs.	Costly property rights must be acquired. Construction coordination required with Metra. Possible underground obstructions from previous freight yard buildings. Inductive coordination required with Metra.
4-X	0.93	7.07	LaSalle St. south to Polk St. east to Clark St. south to 11th Pl. east to Federal St., south to 14th St. east to State St. south to State TSS.	Within public ROW. Minimizes impact to city streets. Minimizes street restoration costs. Underground utility congestion is minimized using this route.	Temporary disruption to Dearborn Park area near intersection of 11th Place & Federal St. R.O.W.
5-X	0.93	7.57	LaSalle St. south to Polk St. east to Plymouth St. south to 14th St., east to State St., south to State TSS.	Within public ROW.	Impact on city streets. Underground utility congestion is reasonably high. Polk & Plymouth Inter. may require tunneling to cross. Plymouth & Roosevelt intersection may require tunneling to cross.

\* "X" means XLPE cable system. "P" means HPFF cable system.

# Proposed 138kV Transmission Route Alternatives - LaSalle TSS to State TSS

Route Option*	Route Length (mi.)	Est. Route Cost Yr. 2002 \$mil.	Route Description	Advantages	Disadvantages
6-X	1.06	8.18	LaSalle St. south to Polk St. east to Clark St., south to 15th St. east to State St. north to State TSS.	Within Public ROW. Minimizes impact to traffic.	Utility congestion high. Close proximity to and parallels MWRD sewer and water main. Area south of Roosevelt Rd. may require tunneling to cross other utilities.
6-Xa	0.93	7.43	LaSalle St. south to Polk St. east to Clark St., south to 14th St. east to State St. south to State TSS.	Within Public ROW except utility easement at Clark & 14th St.	Utility congestion high. Close proximity to and parallels MWRD sewer and city water main. Area south of Roosevelt Rd. and area at Clark & 14th St may require tunneling to cross other utilities.

\* "X" means XLPE cable system. "P" means HPFF cable system.